

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

Claim 1 (currently amended): A semiconductor material comprising a plurality of coordinatively irregular structures, said coordinatively irregular structures being distorted from a regular tetrahedral bonding configuration and in a state of order intermediate between the amorphous and single crystalline phases with the same composition as said coordinatively irregular structures, each of said coordinatively irregular structures having an average thickness ranging from 1 to 5 atomic diameters.

Claim 2 (original): The semiconductor material of claim 1, wherein said semiconductor material comprises silicon.

Claim 3 (original): The semiconductor material of claim 2, wherein said semiconductor material further includes germanium.

Claim 4 (original): The semiconductor material of claim 2, wherein said semiconductor material further includes hydrogen.

Claim 5 (original): The semiconductor material of claim 2, wherein said semiconductor material further includes fluorine.

Claim 6 (original): The semiconductor material of claim 2, wherein said semiconductor material further includes carbon.

Claim 7 (original): The semiconductor material of claim 2, wherein said semiconductor material further includes oxygen.

Claim 8 (original): The semiconductor material of claim 2, wherein said semiconductor material further includes nitrogen.

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Claim 9 (original): The semiconductor material of claim 2, wherein said semiconductor material further includes a dopant.

Claim 10 (original): The semiconductor material of claim 1, wherein said coordinatively irregular structures are disposed in a matrix.

Claim 11 (original): The semiconductor material of claim 10, wherein said matrix is of substantially the same composition as said coordinatively irregular structures.

Claim 12 (original): The semiconductor material of claim 10, wherein said matrix includes amorphous regions.

Claim 13 (original): The semiconductor material of claim 10, wherein said matrix includes microcrystalline regions.

Claim 14 (original): The semiconductor material of claim 1, wherein said material is in the form of a thin film.

Claim 15 (original): The semiconductor material of claim 14, wherein said thin film is incorporated into a photovoltaic device.

Claim 16 (original): The semiconductor material of claim 14, wherein said thin film is incorporated into a diode.

Claim 17 (original): The semiconductor material of claim 14, wherein said thin film is incorporated into a transistor.

Claim 18 (original): The semiconductor material of claim 14, wherein said thin film is incorporated into a solar cell.

Claim 19 (original): The semiconductor material of claim 1, wherein each of said coordinatively irregular structures has an average width ranging from 1 to 5 atomic diameters.

Claim 20 (original): The semiconductor material of claim 1, wherein said semiconductor material is porous.

Claims 21 – 30 (canceled)

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Claim 31 (currently amended): A The semiconductor body formed by the process of claim 21 comprising coordinatively irregular structures, said coordinatively irregular structures being distorted from a regular tetrahedral bonding configuration and in a state of order intermediate between the amorphous and single crystalline phases with the same composition as said coordinatively irregular structures, each of said coordinatively irregular structures having an average thickness ranging from 1 to 5 atomic diameters,
produced by a process comprising the steps of:

forming a semiconductor material;

treating said semiconductor material with a plasma of hydrogen, fluorine, or any combination thereof;

repeating said forming and treating steps as needed to produce a desired volume of said semiconductor body.

²⁴
Claim 32 (original): The semiconductor body of claim 31, wherein said semiconductor body comprises silicon, germanium, or a combination thereof.

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Claim 33 (original): The semiconductor body of claim 32, wherein said semiconductor body further includes hydrogen.

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Claim 34 (original): The semiconductor body of claim 32, wherein said semiconductor body further includes fluorine.

²¹
Claim 35 (new): The semiconductor material of claim 1, wherein the bandgap energy of said semiconductor material is between 1.1 eV and 1.8 eV.

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Claim 36 (new): The semiconductor material of claim 1, wherein the refractive index of said semiconductor material is less than 3.32.

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Claim 37 (new): The semiconductor material of claim 1, wherein the refractive index of said semiconductor material is less than 3.22.

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Claim 38 (new): The semiconductor material of claim 1, wherein the refractive index of said semiconductor material is about 3.